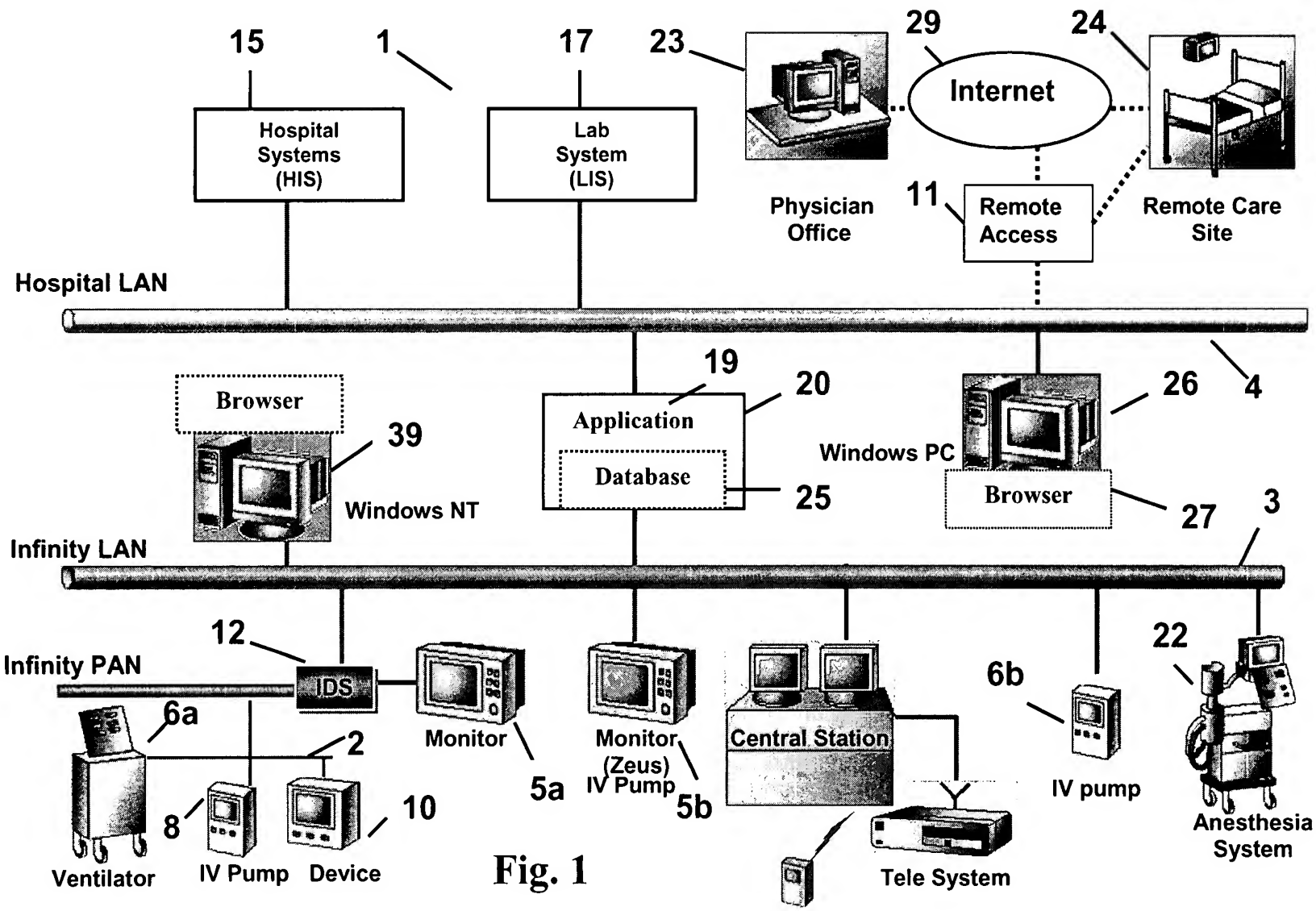

15
1
17
23
29
24
Hospital Systems (HIS)
Lab System (LIS)
Internet
Physician Office
11
Remote Access
Remote Care Site
Hospital LAN
19
20
26
4
Browser
39
Application
Database
Windows PC
25
Browser
27
3
Windows NT
Infinity LAN
12
22
Infinity PAN
IDS
6a
Monitor
Monitor (Zeus) IV Pump
Central Station
6b
IV pump
2
5a
5b
8
10
Ventilator
IV Pump
Device
Tele System
Anesthesia System

Fig. 1

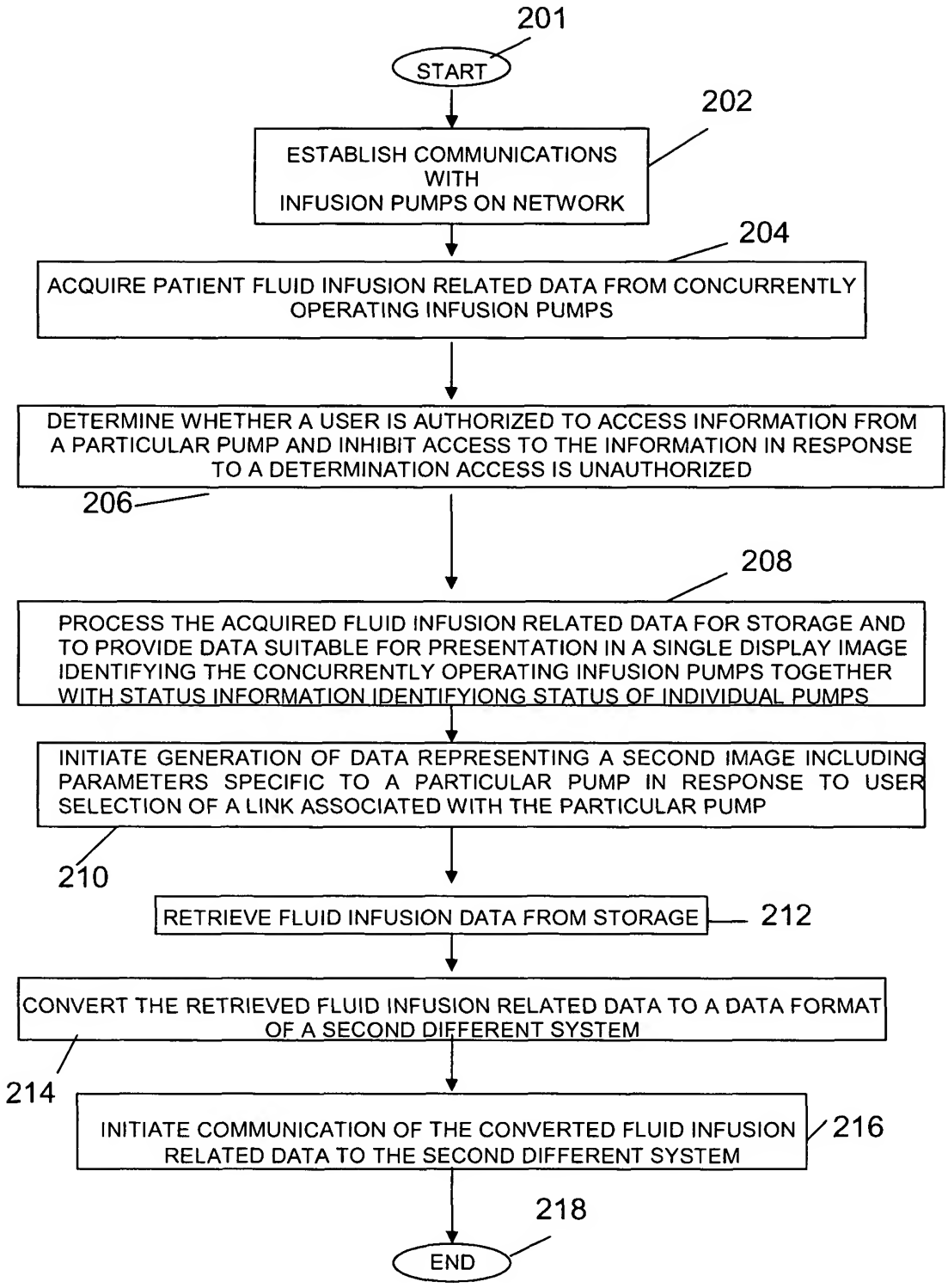

201
START
202
ESTABLISH COMMUNICATIONS WITH INFUSION PUMPS ON NETWORK
204
ACQUIRE PATIENT FLUID INFUSION RELATED DATA FROM CONCURRENTLY OPERATING INFUSION PUMPS
DETERMINE WHETHER A USER IS AUTHORIZED TO ACCESS INFORMATION FROM A PARTICULAR PUMP AND INHIBIT ACCESS TO THE INFORMATION IN RESPONSE TO A DETERMINATION ACCESS IS UNAUTHORIZED
206
208
PROCESS THE ACQUIRED FLUID INFUSION RELATED DATA FOR STORAGE AND TO PROVIDE DATA SUITABLE FOR PRESENTATION IN A SINGLE DISPLAY IMAGE IDENTIFYING THE CONCURRENTLY OPERATING INFUSION PUMPS TOGETHER WITH STATUS INFORMATION IDENTIFYIONG STATUS OF INDIVIDUAL PUMPS
INITIATE GENERATION OF DATA REPRESENTING A SECOND IMAGE INCLUDING PARAMETERS SPECIFIC TO A PARTICULAR PUMP IN RESPONSE TO USER SELECTION OF A LINK ASSOCIATED WITH THE PARTICULAR PUMP
210
RETRIEVE FLUID INFUSION DATA FROM STORAGE
212
CONVERT THE RETRIEVED FLUID INFUSION RELATED DATA TO A DATA FORMAT OF A SECOND DIFFERENT SYSTEM
214
INITIATE COMMUNICATION OF THE CONVERTED FLUID INFUSION RELATED DATA TO THE SECOND DIFFERENT SYSTEM
216
218
END

FIGURE 2

Figure 3

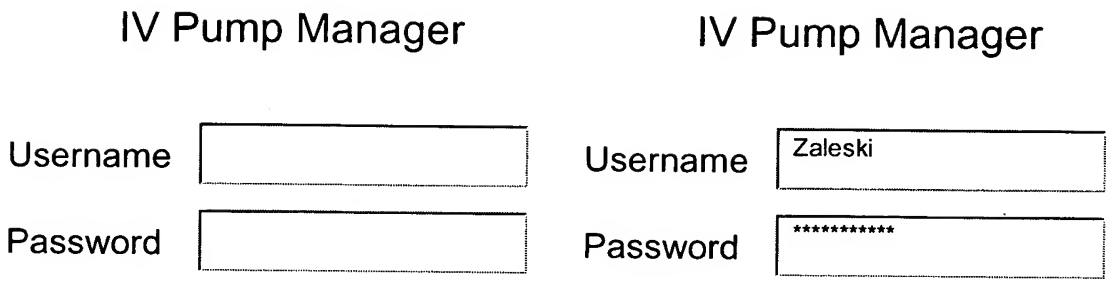


Figure 4

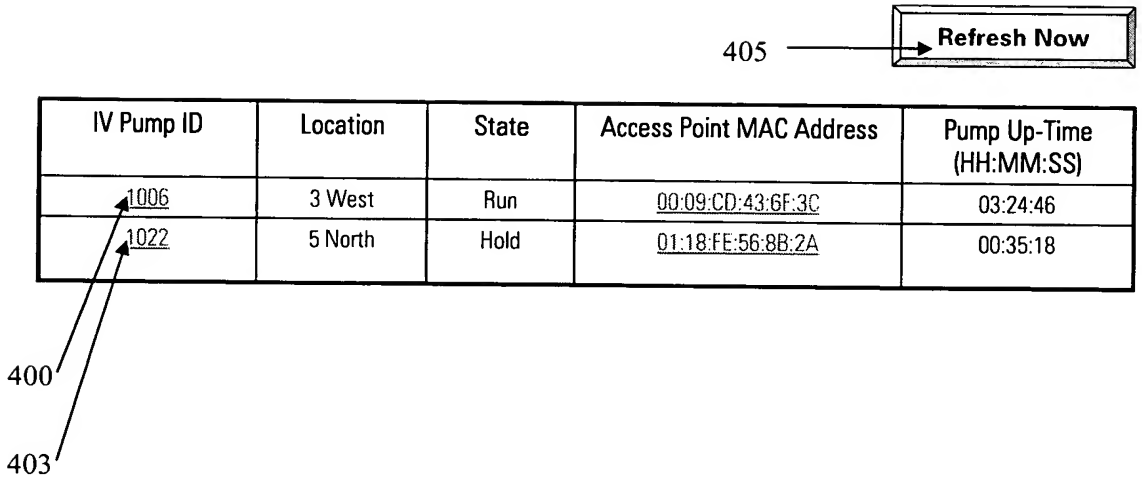
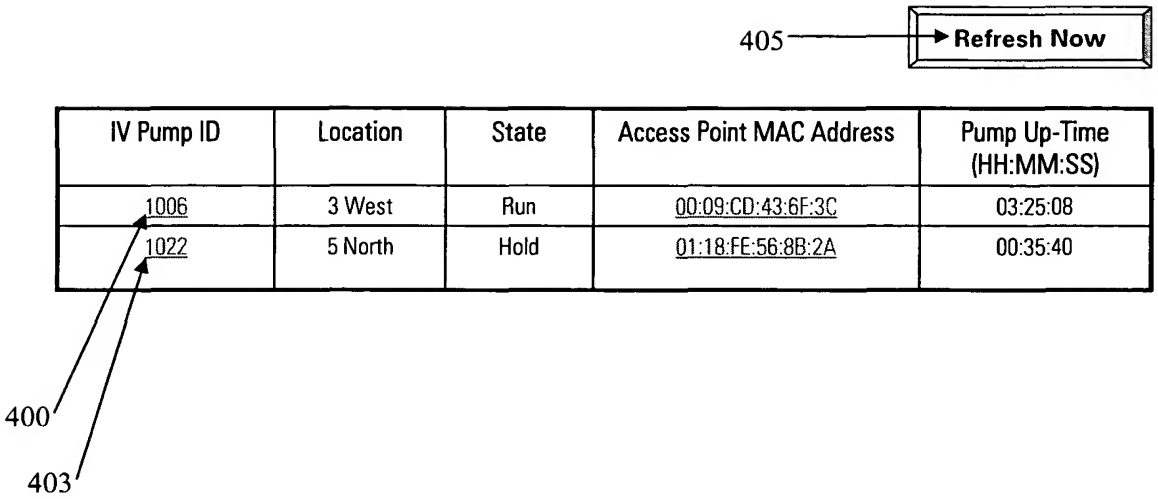


Figure 5


405
Refresh Now
IV Pump ID
Location
State
Access Point MAC Address
Pump Up-Time (HH:MM:SS)
1006
3 West
Run
00:09:CD:43:6F:3C
03:25:08
1022
5 North
Hold
01:18:FE:56:8B:2A
00:35:40
400
403

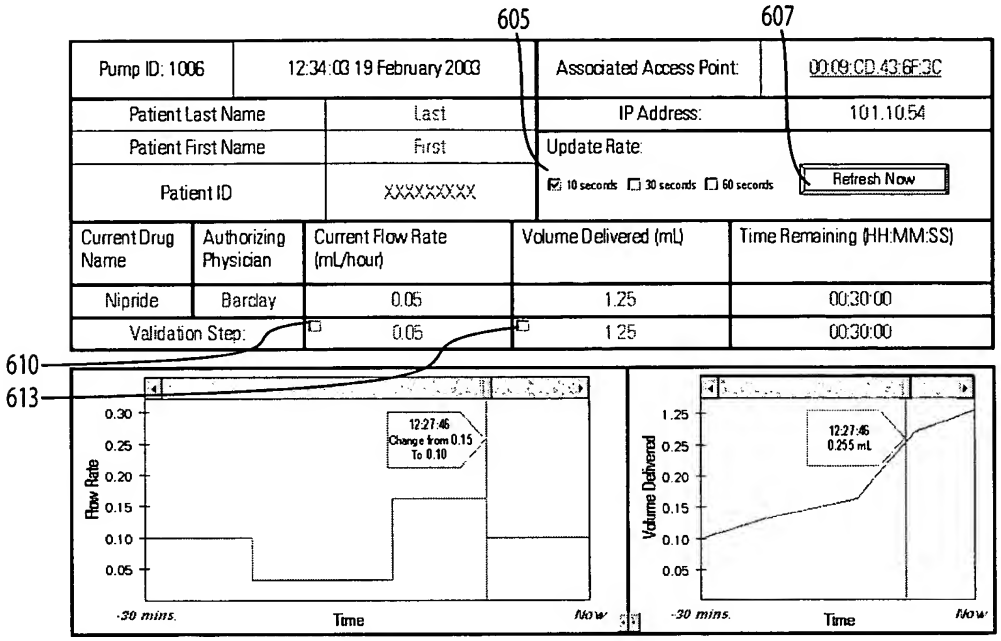

605
607
Pump ID: 1006
12:34:03 19 February 2003
Associated Access Point:
00:09:CD:43:6F:3C
Patient Last Name
Last
IP Address:
101.10.54
Patient First Name
First
Update Rate:
Patient ID
XXXXXXXX
10 seconds
30 seconds
60 seconds
Refresh Now
Current Drug Name
Authorizing Physician
Current Flow Rate (mL/hour)
Volume Delivered (mL)
Time Remaining (HH:MM:SS)
Nipride
Barclay
0.05
1.25
00:30:00
Validation Step:
0.05
1.25
00:30:00
610
613
Flow Rate
0.30
0.25
0.20
0.15
0.10
0.05
12:27:46
Change from 0.15
To 0.10
-30 mins.
Time
Now
Volume Delivered
1.25
0.25
0.20
0.15
0.10
0.05
12:27:46
0.255 mL
-30 mins.
Time
Now

FIGURE 6

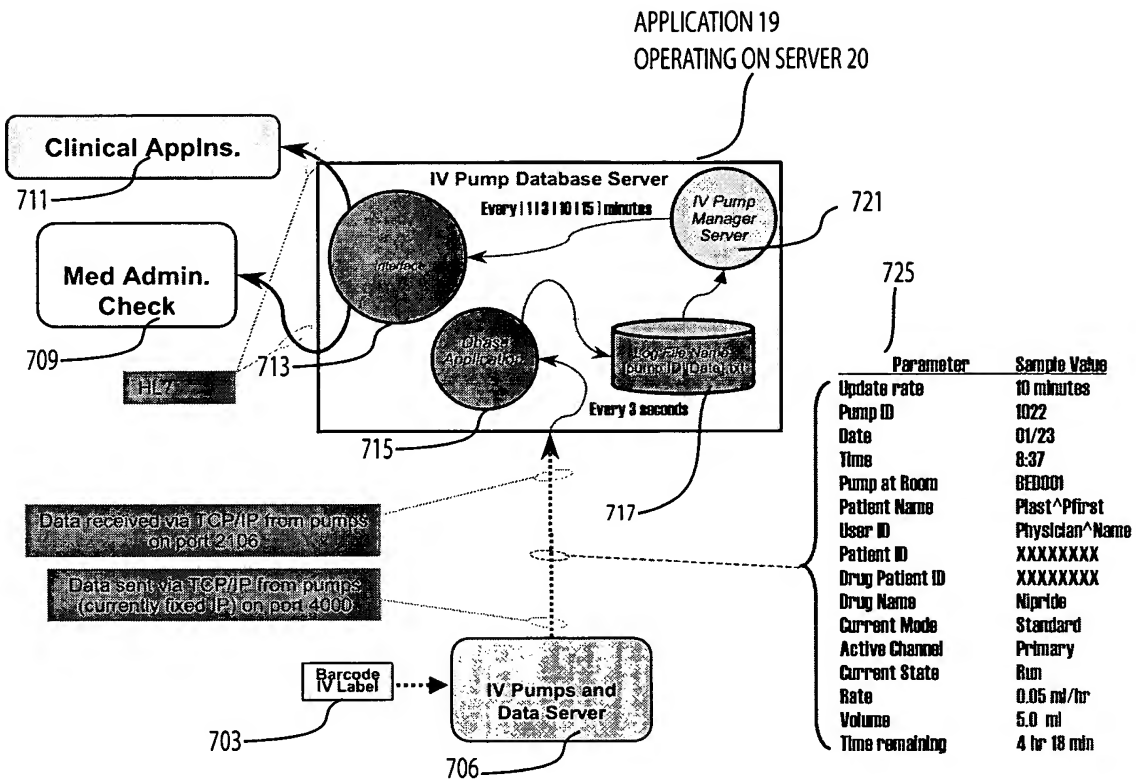

APPLICATION 19
OPERATING ON SERVER 20
Clinical Applns.
711
Med Admin. Check
709
HL7
713
IV Pump Database Server
Every [1|3|10|15] minutes
IV Pump Manager Server
721
Interface
cDataX Application
Every 3 seconds
715
717
725
Parameter | Sample Value
Update rate | 10 minutes
Pump ID | 1022
Date | 01/23
Time | 8:37
Pump at Room | BED001
Patient Name | Plast^Pfirst
User ID | Physician^Name
Patient ID | XXXXXXXX
Drug Patient ID | XXXXXXXX
Drug Name | Nipride
Current Mode | Standard
Active Channel | Primary
Current State | Run
Rate | 0.05 ml/hr
Volume | 5.0 ml
Time remaining | 4 hr 18 min
Data received via TCP/IP from pumps on port 2106
Data sent via TCP/IP from pumps (currently fixed IP) on port 4000
Barcode IV Label
703
IV Pumps and Data Server
706

FIGURE 7

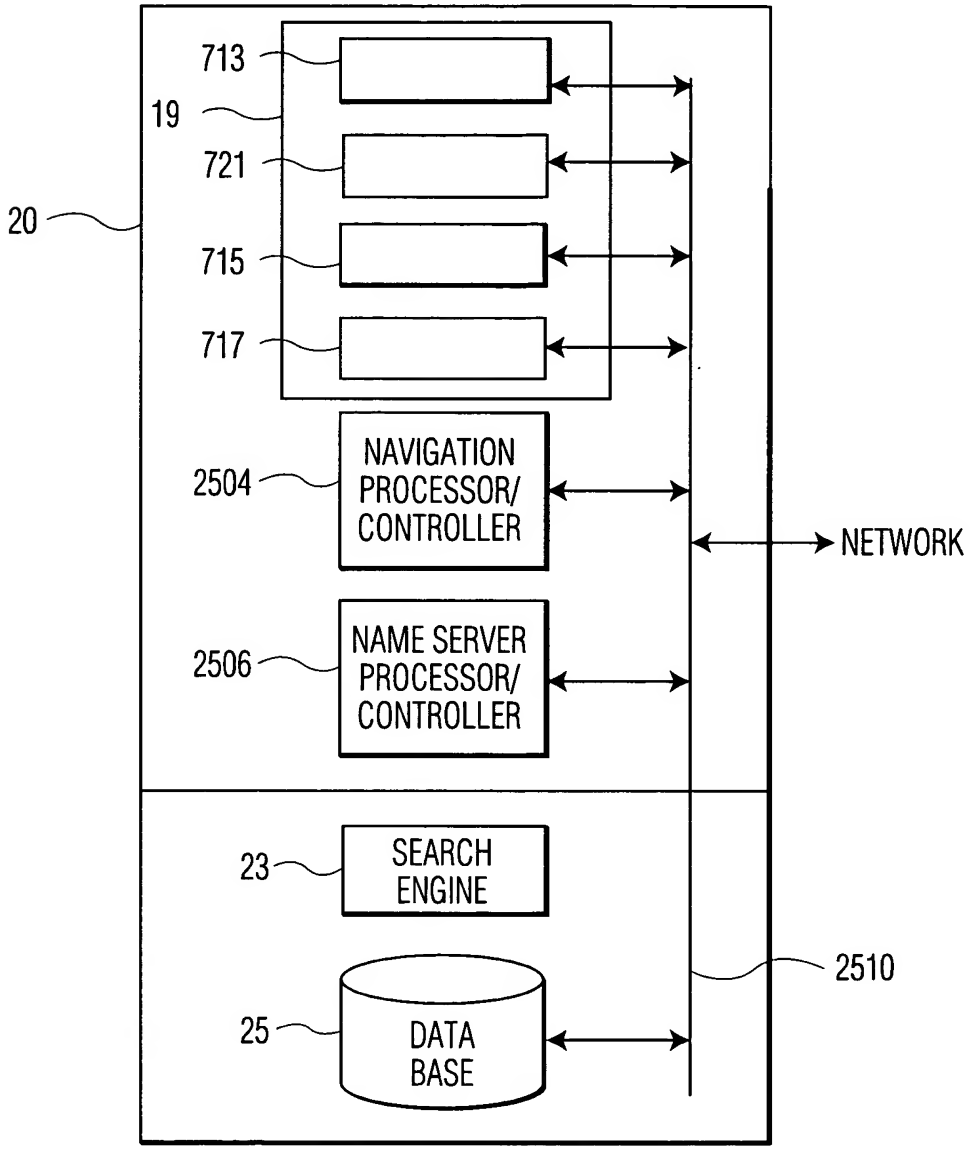

713
19
721
20
715
717
NAVIGATION PROCESSOR/ CONTROLLER
2504
NETWORK
NAME SERVER PROCESSOR/ CONTROLLER
2506
SEARCH ENGINE
23
2510
25
DATA BASE

FIGURE 8